P1-171

THE CLUSTER OF CEPHAMYCIN C BIOSYNTHETIC GENES FROM *Nocardia lactamdurans*

J.J.R. Coque, J.G. Calzada, L. Láiz, R.E. Cardoza, P. Liras, and J.F. Martín*. Section of Microbiology. Dpt. of Ecology, Genetics and Microbiology, Faculty of Biology, University of León, 24071 León, Spain

We have cloned a 34 kb DNA fragment of *Nocardia lactamdurans*, that contains closely linked at least four genes encoding enzymes for the biosynthesis of the β-lactam antibiotic cephamycin C. The *pcb*AB gene (10950 nt) encodes the ACV synthetase, a very large protein (3649 aa, Mr 404134) that contains three repeated domains for the activation of the three precursor amino acids, and a consensus thioestherase active site sequence near the 3' terminal end. Immediatly downstream is located the *pcb*C gene (987 nt) encoding the isopenicillin N synthase (328 aa, Mr 37469), very similar to other *pcb*C genes of *Streptomyces* and fungi. This two genes are expresed in the same orientation, what differs from the situation of the fungal genes, where both genes are expressed in opposite orientations. The *lat* gene, encoding a 6-lysine aminotransferase involved in the formation of the precursor α-aminoadipic acid, has been found close to the *pcb*AB and *pcb*C genes.

A fourth ORF, located downstream of the *pcb*C gene encodes probably an hydroxilase. The gene has a 81% homology at the nucleotide level with the *cef*F gene and a 77.5% identity in amino acids with the corresponding hydroxilase from *Streptomyces clavuligerus*, but the exact function of ORF4 has not been yet elucidated.